

## **Historic, archived document**

Do not assume content reflects current scientific knowledge, policies, or practices.



A335.8

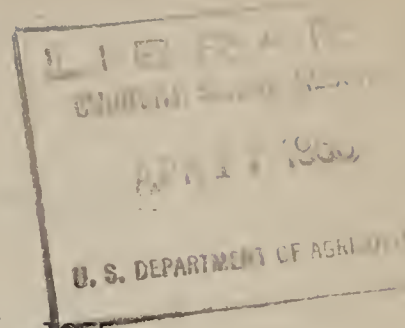
T23

cop 2

UNITED STATES DEPARTMENT OF AGRICULTURE  
Rural Electrification Administration  
Telephone Engineering Division

May 16, 1955

Issue No. 8



Telephone Engineering Newsletter

Newsletters are intended to provide a means of answering questions that arise in the field and to advise the field of new developments. They are not intended to be instructions nor to replace in any respect the presently-approved channels for establishing requirements and procedures. Suggestions for subjects will be gladly received.

Repairs to Loading Coils with Damaged Stubs

The Communication Equipment and Engineering Company, 5646 West Race Street, Chicago 44, Illinois, has agreed to repair damaged loading coils with lead sheathed stubs of their own or Western Electric Company manufacture at \$2.00 to \$2.50 per coil. The service promised is ten days to two weeks at the factory. Coils with paper insulated lead covered stubs are frequently affected by lightning damaging the stubs where this type stub on coils is used with plastic insulated plastic sheathed cable and where the paper insulation is the weakest spot in the installation. Repairs will include substituting plastic insulated plastic sheath stubs for the paper insulated lead covered stubs. Telephone companies having coils with lead sheathed stubs used with plastic insulated cable and experiencing lightning trouble in the stubs should contact the above company about repairs.

Pre-Tied Splint Results

Pre-tied splints that were installed with dampers last fall have been inspected recently to observe the effect of the winter. No abrasion or corrosion of splints, tie wires or line wires was evident where these had been exposed several months in Minnesota and in Virginia. A larger installation is about to be made by the Central Oklahoma Telephone Company, Davenport, Oklahoma, (Oklahoma 534), where 400 pre-tied type splints will be installed on .109 inch galvanized steel line wire. The splints were supplied gratis by the Indiana Steel and Wire Company. Tools somewhat like large shoe button hooks have been provided by the Indiana Steel and Wire Company which facilitate spiraling the splints onto or off of the line wire, an operation that is rather hard on thumbs when done by hand.

### Polyethylene Covered Line Wire Installation

The first installation of circuits with both wires of the pairs insulated with polyethylene was made at Clearbrook, Minnesota, the first week of March. Each circuit was a mile long, one being .109 inch 135 grade galvanized steel with 21 mils of insulation and the other .080 inch copperweld with 15 mils of insulation. The installation plan called for armor rods clamped to the crossarms with no insulators. The clamps pressed the six armor rods through the polyethylene covered steel wire and caused short circuits at tandem brackets. This condition is understood to have been corrected by using double groove glass insulators on pins at these points. If seven armor rods had been used, the trouble probably would not have occurred, since, the six armor rods used on the copperweld wire did not give this trouble because they completely surrounded the insulation and no appreciable squeezing of the insulation occurred. From this experience it was suggested that porcelain knobs be used to which the armored wire will be tied, in a trial about to be made at Ellendale, North Dakota, mentioned in Newsletter No. 7. Ten miles of two wire insulated steel wire will be installed on Lafourche Telephone Company, Larose, Louisiana, to test corrosion characteristics, etc.

### Impending Issuance of TE & CM Sections and Addenda

The following list of new sections, revisions, and addenda is being printed and will be ready for distribution shortly:

- Section 128, Cutsheet - New
- Section 215, Rehabilitation of Existing Outside Plant - Revision
- Section 220, Traffic Agreements
- Section 422, Subscriber Loop Calculations - Addendum
- Section 430, Subscriber Line Loading - Addendum
- Section 431, Voice-Frequency Loading on Trunk Lines - New
- Section 615, Design of Open Wire Plant - Revision
- Section 627, Route and Pole Numbering - Revision
- Section 629, Cable Layout - New Section
- Section 633, Multi-Pair Distribution Wire Construction - New Section
- Section 680, Acceptance Tests, Outside Plant - Revision
- Section 701, Station Installations - Addendum
- Section 702, Booths and Special Fittings - Revision
- Section 910, Subscriber Line Carrier Equipment - Addendum



### Self-Supporting Cable Installation

The Union Point Telephone Company, Union Point, Georgia (Georgia 544), is now erecting about 3000 feet of 26 pair 19 gauge copperweld conductor plastic insulated and plastic sheathed self-supporting cable in which the shielding is .003 inch copper tape. Representatives from REA Outside Plant Engineering Group observed the placing and splicing of some of this cable. Twisting of the copperweld conductors by the conventional method was found to be entirely practicable. A silicone grease filled plastic tube was slipped over each twisted joint. At mid-span splices the splice closures are made using Western Electric Company 1A splice cases. Cook PLX pole mounted "in and out" type cable terminals are used. Preformed cable grips are used at splices and terminals to suspend the cable and give slack. Preformed armor rods are applied over the sheath for tying in on "neutral wire brackets" at poles other than where terminals are placed.

### Line Wire Vibration Damper Results

Plastic vibration dampers which have experienced one winter of cold and wind have been examined on a few jobs and show very little effect of the line wire vibrations. Over 1,000,000 of these have been purchased for use by REA borrowers. Their efficiency in reducing vibration has been so marked that consideration is now being given to extending their field of use. One interesting comment resulting from their use is that they remove the audible hum that otherwise may be transmitted from a pole line to a house by a drop wire. In addition, they minimize loosening of pole line hardware.

### Point Type Transposition

Point type transpositions assist in minimizing mid-span hits in long spans by increasing wire separation. Instructions regarding their use are being prepared and will be issued for the guidance of REA personnel and consulting engineers.

#### Multi-Pair Distribution Wire

A specification PE-15 has been prepared and issued covering the requirements for multi-pair distribution wire under which manufacturers will make this wire for REA telephone program borrowers. This was prepared with the assistance of the several manufacturers of this wire. The "List of Materials Acceptable for Use on Telephone Systems of REA Borrowers" does not list acceptable manufacturers as yet. In the interim it is expected that users will obtain this wire from the manufacturers who certify that their product meets the requirements of PE-15.

#### Support Brackets for Multi-Pair Distribution Wire

A pole line hardware manufacturer has produced samples of support brackets for this type of wire which weigh less than half as much as the brackets now available. They are making strength tests on these and will supply REA with the results in a short time after which their adoption can be considered.

#### Point-to-Point Radio Subscriber Equipment

The Raytheon radio subscriber line circuit equipment installed last September on the system of the Amberg Telephone Company between Wausaukee and Chalk Hills, Wisconsin, has had no service failure to date. Representatives of Raytheon and REA inspected it in April of this year and found only two weak tubes although the equipment has been continuously operating since it was manufactured in June, nearly a year ago. This equipment serves two ten party lines and the customers reported complete satisfaction when the inspection party requested their opinions. Heavy snow storms and below zero weather had no effect on it. A check of percent make of dials was made and it was found that very little impulse distortion occurs. Ringing, tripping, transmission and crosstalk tests were made and no difficulties encountered. The power consumption was found to be close to \$30.00 per month for the two terminals in an area where power rates are high.